

Name: \_\_\_\_\_

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A2 CC Review Q2 Exam 3

**This review is not comprehensive. Be sure to study your notes, homework assignments and old tests as well.**

1. Which of the following sets of ordered pairs would *not* be considered a function?

(1)  $\{(-4, 1), (-1, 7), (3, 8), (5, 3)\}$

(2)  $\{(-2, 5), (6, 1), (-2, 10), (6, -1)\}$

(3)  $\{(2, 8), (4, 10), (6, 8), (8, 10)\}$

(4)  $\{(-3, 5), (3, -5), (-6, 7), (6, -7)\}$

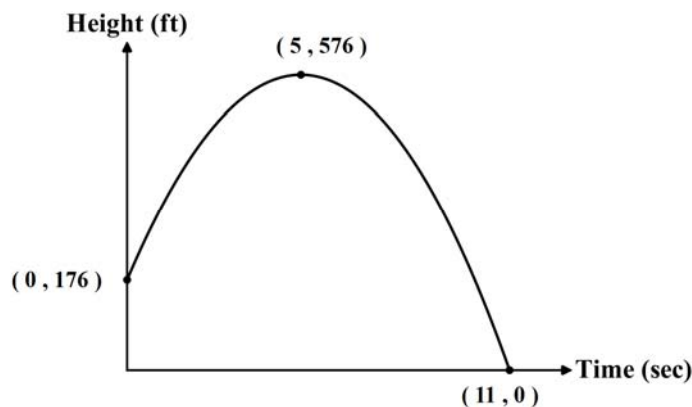
2. In the following graph, the height of an object, in feet, is given as a function of time in seconds. Which of the following would be the range of this function?

(1)  $[0, 5]$

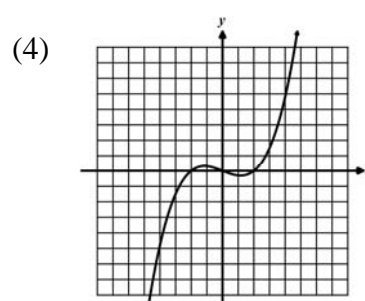
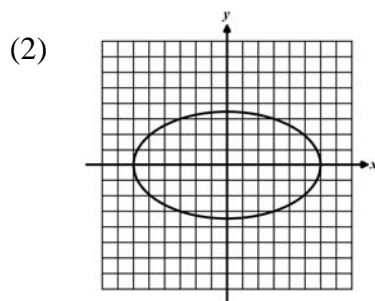
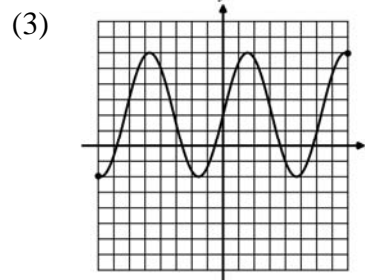
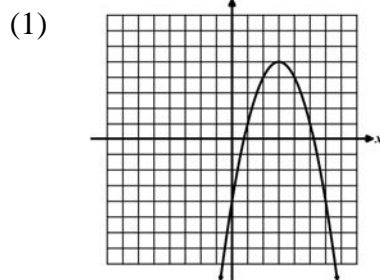
(2)  $[0, 11]$

(3)  $[176, 576]$

(4)  $[0, 576]$



3. In which of the following four graphs is the output *not* a function of the input?



4. If  $f(x) = -\frac{1}{2}x + 6$ , then which of the following values solves the equation  $f(x) = 10$ ?

(1) 1 (3) -8

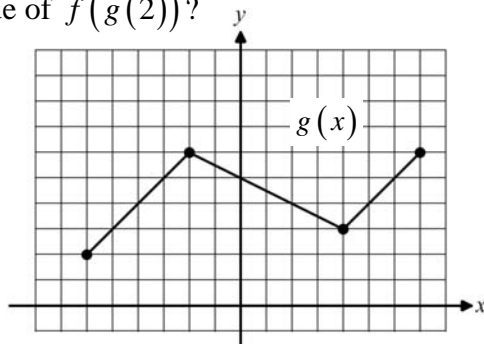
(2) -4 (4) 11

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5. The function  $f$  is defined by the formula  $f(x) = x^2 + 2$  and the function  $g$  is defined by the graph shown below. Which of the following is the value of  $f(g(2))$ ?

(1) 18 (3) 5

(2) 14 (4) 9



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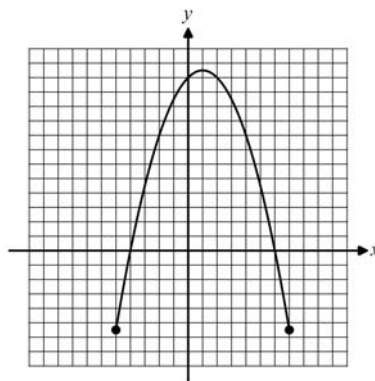
6. Given the function  $f(x)$  shown in the graph below, for which of the following intervals is  $f(x) > 0$ ?

(1)  $(0, 8)$

(2)  $[0, 8]$

(3)  $(-4, 6)$

(4)  $[-4, 6]$



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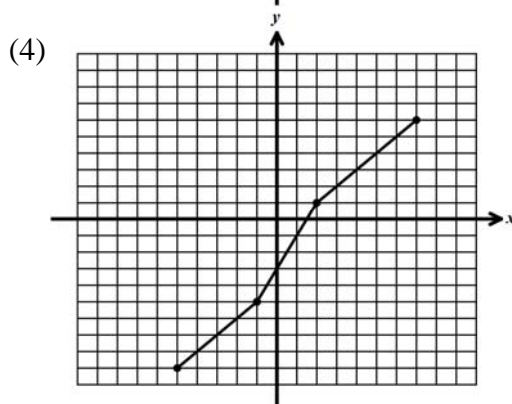
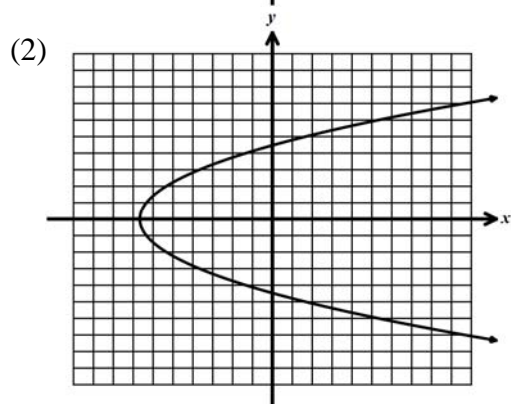
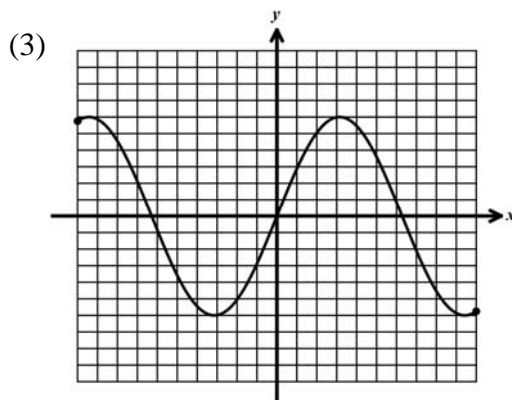
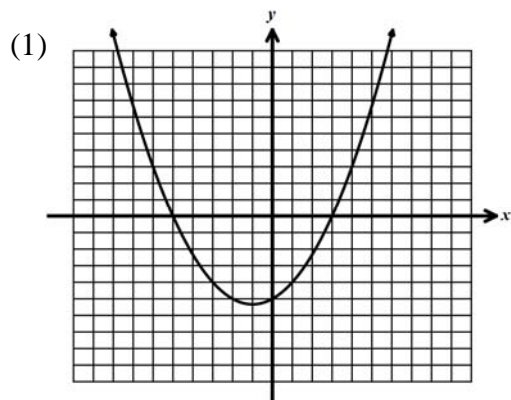
7. Which of the following values of  $x$  would *not* be in the domain of the function  $f(x) = \frac{x-7}{2x+5}$ ?

(1) 7 (3) -5

(2)  $-2\frac{1}{2}$  (4) -7

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8. Which of the following graphs represents a one-to-one function?



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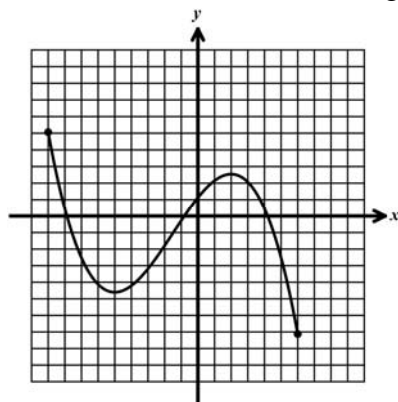
9. Given the function shown below, over which of the following intervals is the function always increasing?

(1)  $0 < x < 5$

(2)  $-5 < x < 2$

(3)  $-1 < x < 4$

(4)  $-9 < x < -5$



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10. A circle whose center is at  $(5, -3)$  and which passes through the point  $(7, -8)$  has a radius equal to?

(1) 5

(3)  $\sqrt{44}$

(2)  $\sqrt{29}$

(4) 8

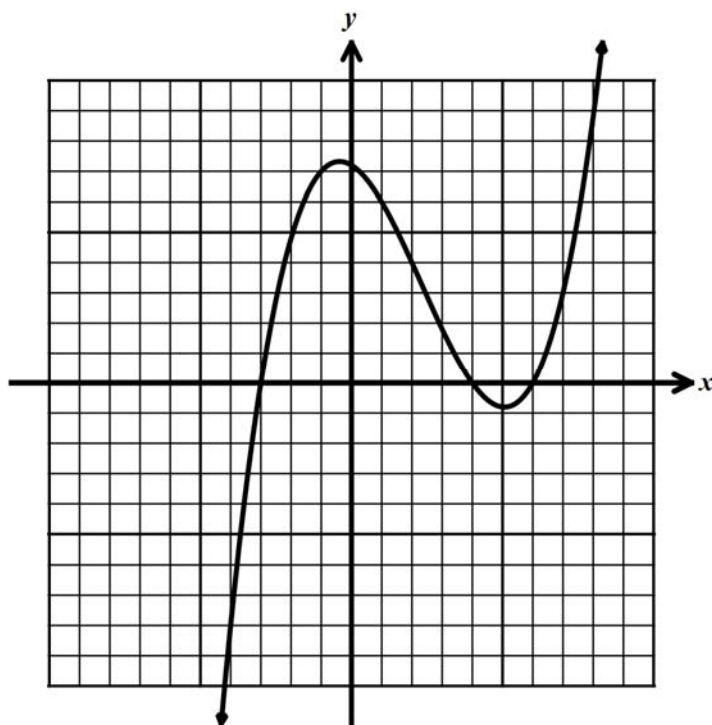
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11. Given the function  $y = f(x)$  shown graphed below, answer the following questions.

(a) State the value of  $f(2)$ .

(b) How many values solve the equation  $f(x) = 5$ ?  
Explain how you arrived at your answer.

(c) On the interval  $0 < x < 4$  is the function increasing or decreasing? How can you tell?



(d) If a second function is defined by the formula  $g(x) = \frac{2x-7}{3}$ , then what is the value of  $g(f(1))$ ? Show the work that leads to your answer.

12. For the function  $f(x) = \sqrt{x-9}$ , either  $x = 0$  or  $x = 45$  is a member of its domain. Determine which and explain how you arrived at your answer.

13. Is the function  $y = |x - 6| + 2$  a one-to-one function? Explain your answer.

14. The temperature of a room is measured over the span of the day with selected values given in the table below.

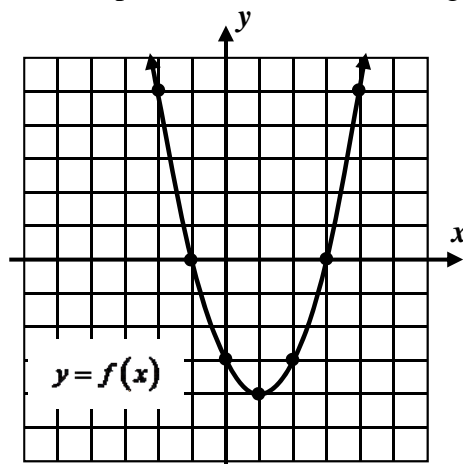
Time (hrs)	0.5	1.5	2.0	4.0	5.5	7.25	8.0	9.5	10.0
Temperature (°F)	64	66	71	78	81	79	71	68	66

Based on this table, explain why temperature can be considered a function of time but time cannot be considered a function of temperature.

15. What are the coordinates of the center of the circle whose equation is  $x^2 + 4x + y^2 - 10y + 12 = 0$ ?

16. Determine the center and radius of the circle whose equation is  $x^2 + 6x + y^2 - 14y = 42$

17. The function  $f(x) = x^2 - 2x - 3$  is graphed on the grid below. Express the domain and range in interval notation.



18. Which of the following values of  $x$  would not be in the domain of the function  $y = \sqrt{x+4}$ ? Explain your answer.

(1)  $x = 0$                       (3)  $x = -3$

(2)  $x = 5$                       (4)  $x = -8$

19. A function is given by the set of ordered pairs  $\{(2, 5), (4, 9), (6, 13), (8, 17)\}$ . Write its domain and range in roster form.

Domain:

Range:

20. The function  $h(x) = x^2 + 5$  maps the domain given by the set  $\{-2, -1, 0, 1, 2\}$ . Which of the following sets represents the range of  $h(x)$ ?

(1)  $\{0, 6, 10, 12\}$               (3)  $\{5, 6, 9\}$

(2)  $\{5, 6, 7\}$                       (4)  $\{1, 4, 5, 6, 9\}$

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21. Which of the following values of  $x$  would *not* be in the domain of the function defined by  $f(x) = \frac{x-2}{x+3}$ ?

(1)  $x = -3$                       (3)  $x = 3$

(2)  $x = 2$                       (4)  $x = -2$

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22. Determine any values of  $x$  that do not lie in the domain of the function  $f(x) = \frac{3x+2}{2x-10}$ . Justify your response.

23. Which of the following values of  $x$  *does* lie in the domain of the function defined by  $g(x) = \sqrt{2x-7}$ ?

(1)  $x = 0$                       (3)  $x = 3$

(2)  $x = 2$                       (4)  $x = 5$

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24. Which of the following would represent the domain of the function  $y = \sqrt{6-2x}$ ?

(1)  $\{x : x > 3\}$                   (3)  $\{x : x \leq 3\}$

(2)  $\{x : x < 3\}$                   (4)  $\{x : x \geq 3\}$

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25. A child starts a piggy bank with \$2. Each day, the child receives 25 cents at the end of the day and puts it in the bank. If  $A$  represents the amount of money and  $d$  stands for the number of days then  $A(d) = 2 + 0.25d$  gives the amount of money in the bank as a function of days (think about this formula).

(a) Evaluate  $A(1)$ ,  $A(7)$ , and  $A(30)$ .

(b) For what value of  $d$  will  $A(d) = \$10.50$ .

(c) Explain why the domain does not contain the value  $d = 2.5$ .

(d) Explain why the range does not include the value  $A = \$3.10$ .

26. Write  $\frac{x^3 - 10x^2 + 11x + 70}{x + 2}$  in the form  $q(x) + \frac{r}{x + 2}$ , where  $q(x)$  is a polynomial and  $r$  is a constant.

27. What is the domain of  $\frac{2}{\sqrt{x^2 - x - 30}}$ ?

28. Is  $(x+4)$  a factor of  $x^4 - 3x^3 + 25x^2 - 10$ . Explain your answer.

29. Solve  $\frac{x+1}{x-3} \geq 2$  and express your answer in set builder notation.

30. Solve  $x^2 + 40 = -6x$  by completing the square.

31. Solve for all zeros:  $P(x) = x^5 + 2x^3 - 24x$

32. Determine the equation of the cubic that has zeros of -4, 2, and 5 and also passes through the point (6, 20).